in the "plastic clay" of England (1845), and in the "conglomérate de l'argile plastique" at Meudon, France (1856) \*, of the elements toward a restoration of which we might have long remained in doubt had they continued to be made known to us as parts of a Bathmodon or Loxolophodon †.

#### EXPLANATION OF THE PLATES.

#### PLATE X.

- Fig. 1. Under view of anterior trunk-vertebra (one fifth nat. size) of Chondrosteosaurus.
- Fig. 2. Upper view of the same vertebra (one fifth nat. size) of ditto.
- Fig. 3. Upper view of a similar, but more mutilated, vertebra (much reduced) of ditto (after Cope).
- Fig. 4. Side view of a dorsal vertebra (after Cope), much reduced, of ditto.
- Fig. 5. Longitudinal vertical section of a dorsal vertebra of a Poikilo-
- pleuron.

  Fig. 6. Longitudinal horizontal section of a cervical vertebra of an eagle (Haliæetus albicilla).

#### PLATE XI.

- Fig. 1. Bones of the left fore foot, Coryphodon (after Marsh, much reduced).
- Fig. 2. Bones of the left hind foot, Coryphodon (ditto, ditto).
- Fig. 3. Outline of skull and cerebral cavity, Coryphodon (ditto, ditto).
- Fig. 4. Bones of the fore foot, Acerotherium (reduced).
- Fig. 5. Ditto, Rhinoceros (reduced).
- Fig. 6. Ditto, Orohippus (ditto). Fig. 7. Ditto, Hipparion (ditto).
- Fig. 8. Ditto, Equus (ditto).

#### XXV.—Characters of undescribed Species of Halticinæ. By Joseph S. Baly, F.L.S.

[Continued from ser. 5, vol. i, p. 322.]

#### Œdionychis bitæniata, Clark, MS.

E. subelengato-ovata, postice paullo ampliata, convexa, pallide flava, femoribus posticis apice, scutello elytrisque (his basi exceptis) nigris; elytris crebre, sat fortiter punctatis, cyaneis, limbo

\* Hébert, 'Annales des Sciences Nat.' t. vi. p. 87, pls. iii. and iv. (1856).

† "The Museum of Yale College contains a large collection of Cory-phodon remains from Utah, Wyoming, and New Mexico; and this mate-rial is amply sufficient to indicate all the more important characters of the group. Among these specimens are portions of the same individuals described by Cope under the names Bathmodon and Loxolophodon, both of which are synonyms of Coryphodon" (Marsh, American Journal of Science and Arts, vol. xiv. July 1877, p. 81).

laterali a basi ad medium, fascia lata prope medium, altera ante apicem limboque inflexo pallide flavis. Long. 4-5 lin.

Hab. Brazil.

Head short, trigonate; vertex and front coarsely punctured on the sides; encarpæ transverse, bounded above by a deep depression; carina ill defined, broad, trigonate, terminating below on the usual transverse ridge; eyes rotundate, ovate, not sinuate within; antennæ about half the length of the body, filiform, the second joint ovate, the third and fourth equal, each more than half the length of the second; three lower joints flavous, the rest black. Thorax nearly three times as broad as long; sides broadly dilated, reflexed, parallel at the base, thence rounded and converging to the apex, the latter armed with an obtuse, very slightly excurved tooth; disk very minutely and distinctly punctured, faintly impressed in front of the basal margin with an ill-defined transverse groove, also indistinctly sulcate on either side just behind the apical margin; dilated margin concave, its surface irregular. Scutellum regularly trigonate, shining black, its surface granulose. Elytra broader than the thorax, ovate, slightly dilated posteriorly, closely and deeply punctured, lateral margin narrowly dilated, reflexed. Hinder claw strongly thickened, nigro-piceous. Prosternum narrow, elongate, its apex subspatulate.

## Œdionychis elegans.

E. late ovata, convexa, pallide rufo-picca, nitida, antennis extrorsum nigris; elytris cyaneo-nigris, sat fortiter punctatis; utrinque vittis duabus latis, basi et apice conjunctis, prima submarginali, secunda discoidali, a basi ad medium intus curvata, hine ad apicem ad suturam parallela, flavis ornatis.
Long. 3 lin.

Hab. Bahia. Collected by Mr. Edwin Reed.

Head trigonate; vertex smooth, impunctate; front excavated above the encarpæ, impressed with large round punctures; encarpæ subquadrate; carina ill defined, wedge-shaped; antennæ scarcely half the length of the body, the second joint ovate, the third, fourth, and fifth nearly equal, the two latter rather longer than the third, the sixth and five following joints shorter, each nearly equal in length to the third, the five upper ones slightly thickened, black. Thorax three times as broad as long; sides broadly dilated, straight and nearly parallel from the base to beyond the middle, thence rounded and converging to the apex; apical angle thickened, armed with a short, excurved, acute tooth; upper surface finely but

not closely punctured; lateral margin reflexed, concave, its outer edge thickened. Elytra broader than the thorax, very broadly ovate, convex, closely punctured, shining black with a metallic-blue tint; each elytron with two broad pale yellow vitte, confluent at base and apex, one submarginal, the other commencing on the shoulder and curving obliquely downwards and inwards as far as the middle of the elytra, from which point it runs parallel and close to the suture as far as the apex. where it joins the submarginal vitta. Hinder thigh strongly thickened; hinder tibiæ shorter than the femora; claw-joint of hinder tarsus strongly inflated.

#### Œdionychis seriata.

E. anguste ovata, convexa, subtus piceo-flava, supra flava, nitida, capite (antennis extrorsum nigris exceptis) scutelloque piceis; elytris tenuiter, crebre punctatis, sutura utrinque, apice extremo maculisque elongatis 8 (his in lineis longitudinalibus duabus, quarum una submarginali, altera discoidali, seriatis) piceis.

Long. 3½ lin.

Hab. Guatemala.

Vertex smooth and shining; face between the eyes, together with the upper orbits of the latter, impressed with large round punctures; encarpæ smooth, subquadrate, bounded above by a deep transverse depression, from the middle of which a longitudinal groove runs upwards to the vertex; carina narrowly wedge-shaped, terminating below on a strongly raised transverse ridge; antennæ filiform, half the length of the body, the second joint ovate, the third and the following four joints nearly equal in length, each more than one half longer than the second; four lower joints piceo-fulvous, the rest black. Thorax nearly three times as broad as long; sides broadly dilated, reflexed, nearly straight and parallel from the base to the middle, thence rounded and converging to the apex, the anterior angle armed with a short excurved tooth; disk minutely and rather distantly punctured, the punctures only visible with a strong lens; lateral margin concave. Scutellum as broad as long, trigonate. Elytra oblong, rather closely punctured, the punctures pale piceous; convex, the lateral margin only moderately dilated, reflexed; each elytron with a narrow sutural line, the extreme apical margin and eight narrow elongate piceous spots arranged in pairs, two at the base, two before and two beyond the middle, and lastly two subapical; these spots form two longitudinal rows, one placed close to the outer margin and the other on the middle disk. Hinder thighs strongly thickened; apical joint of hinder tarsus strongly inflated.

# Œdionychis posticata.

Œ. ovata, convexa, nitida, subtus flavo-fulva, thorace utrinque macula pedibusque posticis piceis, supra piceo-nigra, fronte, labro antennisque pallide piceis, his basi flavis; thorace minute punctato, tenuiter granuloso-strigoso, basi pallide picea, lateribus explanatis flavis; elytris læte fulvo-testaceis, minute punctatis, fascia lata communi pone medium, fere ad apicem extensa, nigra, apice extremo flavo.

Long.  $2\frac{1}{2}$  lin.

Hab. Amazons. Collected by Mr. Bates.

Head trigonate; vertex and front smooth, impunctate, the latter depressed anteriorly; encarpæ prominent, transversequadrate; carinæ strongly raised and thickened between the bases of the antennæ, terminating below on a strongly raised transverse ridge; eyes large, prominent, slightly sinuate along the inner border; antennæ rather slender, filiform, more than two thirds the length of the body; second joint oblong, third and following five nearly equal, each about one half longer than the second; three lower joints pale yellow, the fourth to the eighth inclusive nigro-piceous, the three upper ones pale piceous. Thorax more than twice as broad as long; sides broadly dilated, reflexed, rounded and converging from base to apex, the anterior angles armed with an excurved setiferous tooth; disk transversely convex, very finely granulose-strigose, very minutely punctured; reflexed lateral margin concave, pale yellow; basal margin pale piceous. Scutellum piceous. Elytra broader than the thorax, broadly ovate, convex; the outer margin narrowly dilated, reflexed; surface minutely punctured, very finely strigose, bright testaceofulvous; a broad common fascia, commencing a short distance below the middle of the disk and extending nearly to the apex, black; the apex itself pale yellow. Hinder thighs strongly thickened; hinder claw-joint strongly dilated.

# Œdionychis crassa, Clark, MS.

E. late ovata, valde convexa, subtus cum capite nitida, pallide rufo-picea, pleuris piceo-nigris; supra opaca, sordide flava, scutello antennisque (his basi exceptis) piceo-nigris; thorace fortiter punctato, lateribus obliquis, apice mucronatis; elytris fortiter punctatis, utrinque vitta piceo-nigra discoidali, a basi ad longe pone medium producta, instructis.

Long. 4 lin.

Hab. Brazil.

Head subrotundate, coarsely rugose; encarpæ transverse, thickened; carina thickened, trigonate, ill defined, termina-

ting below on the usual transverse ridge; antennæ robust, the three lower joints rufo-piceous, the rest nearly black. Thorax more than twice as broad as long at the base; sides obliquely converging and nearly straight from the base to beyond the middle, thence rather more quickly converging to the apex, the latter armed with a short, obtuse, slightly excurved tooth; upper surface coarsely and closely punctured; lateral border moderately dilated, recurved, its surface concave, rugose. Scutellum trigonate, as broad as long. Elytra deeply, coarsely, and closely punctured, the outer margin only narrowly dilated, reflexed; each elytron with a narrow pitchyblack vitta, which, commencing at the base, runs down the inner portion of the outer disk and terminates about halfway between the middle and the apex. Hinder thigh strongly thickened, hinder tibia very short; apical joint of hinder tarsus strongly inflated, nigro-piceous.

#### Œdionychis natalensis.

E. ovata, postice paullo ampliata, valde convexa, sordide fulva, minus nitida, subtus nitida, pectore abdomineque piceis, tibiis (basi excepta), tarsis antennisque (his basi exceptis) nigris; thorace granuloso, subcrebre, evidenter punctato, lateribus fere rectis, a basi ad apicem convergentibus; elytris fortiter, sat crebre punctatis, interstitiis minute punctatis.

Long. 4 lin.

Hab. Port Natal.

Head coarsely rugose-punctate; encarpæ transverse-quadrate, contiguous, bounded above by a deep transverse depression; carina raised, wedge-shaped, its apex acuminate, its lower extremity terminating on a strongly raised transverse ridge, which extends entirely across the lower portion of the clypeus; antennæ filiform, the three lower joints, together with the basal half of the fourth, fulvous, the rest black. Thorax more than twice as broad as long; sides nearly straight, obliquely converging from base to apex, the anterior angles submucronate; basal margin very obtusely rounded, sinuate on either side near the outer angle, the latter slightly produced, very acute; disk granulose, distinctly but not coarsely punctured; median line with a faint longitudinal groove; lateral border broad, reflexed, its surface irregular. Scutellum trigonate, smooth, impunc-Elytra broader than the thorax, broadly oblong-ovate, convex, coarsely punctured, the interspaces nitidous, impressed with minute punctures. Hinder femora strongly thickened. Basal joint of hinder tarsus about equal in length to the second; claw-joint strongly inflated.

#### Œdionychis Germari.

E. late ovata, convexa, nigra, nitida, facie inter oculos, macula utringue antennisque basi piceo-fulvis; thorace albido, fascia pone apicem, utrinque abbreviata, nigra; elytris distincte, subfortiter, punctatis limbo exteriore, fascia mediana nec non sutura inter fasciam et apicem albidis.

Long. 32 lin.

Hab. Bahia.

Head short; vertex and front shining, impunctate; encarpæ transverse-quadrate, bounded above by a deep transverse depression; carina thickened, narrowly wedge-shaped, terminating anteriorly on a strongly raised transverse ridge; antennæ filiform, three lower joints piceo-fulvous, the rest black, third nearly twice as long as the second, scarcely more than half the length of the fourth. Thorax nearly three times as broad as long; sides broadly margined, rounded and converging from base to apex, the anterior angles produced, mucronate; disk minutely punctured, lateral margin reflexed, concave. Scutellum trigonate, its apex rounded. Elytra broader than the thorax, moderately convex, the lateral margin rather broadly dilated; surface distinctly and rather deeply but not coarsely punctured, the interspaces between the punctures minutely punctured. Tarsi nigro-piccous; basal joints of hinder tarsus equal in length to the second; claw-joint strongly dilated.

The broadly oval form will at once distinguish this insect

from any similarly coloured species.

## Œdionychis spilota.

E. elongato-ovata, modice convexa, nitida, subtus nigra, prothorace pedibusque flavis, femoribus tibiisque apice tarsisque nigris; supra flava, vertice antennisque (his basi exceptis) nigris; thorace lateribus late explanatis, rotundatis, disco lævi, fascia basali, utrinque abbreviata, nigra; scutello nigro; elytris minute, crebre punctatis, utrinque maculis quatuor nigris, duabus infra basin transversim positis, prima clongata super callum humerale, secunda inter callum et suturam, subovata, tertia prope medium, magna, transverso-quadrata, quartaque trigonata ante apicem positis.

Long. 3 lin.

Hab. Rio Janeiro. Collected by the late Mr. Squire.

Head trigonate; encarpæ subquadrate, contiguous, bounded above by a deep transverse groove; lower border of clypeus, labrum, jaws, and cheeks nigro-piceous; eyes black; antennæ filiform, third joint twice the length of the second, four lower joints fulvous, the rest black. Thorax twice as broad as long; sides straight and parallel from the base to the middle, thence

obliquely rounded and converging to the apex, the latter produced, thickened, subacute; hinder angles acute, mucronate; disk transversely convex, minutely punctured; lateral margin sroad, reflexed, its surface concave. Scutellum transverse, tubtrigonate, its apex broadly rounded. Elytra broader than he thorax, oblong-ovate, above moderately convex, more coarsely punctured than the thorax, the punctures pale piceous; lateral margin moderately dilated, slightly reflexed. Basal joint of hinder tarsus equal in length to the second.

#### Disonycha fenestrata.

D. elongato-ovata, modice convexa, nitida, subtus fulva, pectore, abdomine femoribusque posticis nigris; supra nigra, antenuis thoraceque fulvis, hoc tenuissime punctato, basi leviter transversim sulcato; elytris distincte punctatis, utrinque plaga magna oblongo-quadrata flava, medio fascia interrupta nigra notata, ornatis. Long. 3 lin.

Hab. Columbia.

Head shining, impunctate; antennæ with the three lower joints stained above with piceous. Thorax nearly twice as broad as long; sides straight and nearly parallel, slightly bisinuate, the hinder angles produced, acute. Elytra narrowly oblong, distinctly punctured; each with a large oblong-quadrate pale yellow patch, which extends from just before to some distance below the middle of the elytron, and from side to side nearly to the sutural and lateral margins; on its surface are several irregular black spots which form an interrupted transverse band across its middle.

#### Systena Oberthuri.

S. elongata, modice convexa, pallide viridis, nitida, oculis nigris, antennis extrorsum pallide piceis; thorace tenuiter punctato; elytris thorace paullo latioribus, parallelis, sat crebre substriatim punctatis, vitta suturali, pone medium abbreviata et utrinque maculis tribus, una super callum humerale, oblonga, secunda prope medium, trigonata, tertiaque ante apicem subrotundata, piceis.

Long. 3 lin.

Hab. Matachin, Panama. Collected by Dr. O. Thieme.

Vertex minutely and remotely punctured, front impressed in the middle with a small fovea; encarpæ trigonate, contiguous; eyes rotundate, black; apex of jaws nigro-piceous; antennæ slender, filiform, more than three fourths the length of the body, the seven outer joints pale piceous. Thorax one half broader than long; sides constricted and sinuate behind the middle, converging in front, the anterior angles

obtuse; surface finely punctured, impressed on either side at the base with an indistinct perpendicular groove; placed transversely between these grooves are several faint ill-defined foveæ. Elytra rather broader than the thorax; sides parallel; disk moderately convex, more strongly and closely punctured than the thorax, the punctures closely arranged in longitudinal striæ; each elytron with a narrow sutural line, abbreviated below the middle, and three large spots on the disk, piceous: of these spots one, oblong, is placed on the humeral callus, the second, trigonate, has its base on the junction of the outer margin with the disk, its apex extending nearly to the suture, and the third, subrotundate and subapical, is larger and better-defined than the two others; on the outer edge of the disk, connecting the two anterior spots, is a nearly obsolete longitudinal piceous line.

The above description is drawn up from a single specimen, kindly sent me by M. Oberthur; but it is more than probable that the piceous markings on the elytra vary in extent, and that some individuals may be found in which the elytra are piceous, with the outer limb and three spots on each elytron pale green.

#### Prasonia Haroldi.

P. elongata, modice convexa, subtus cum scutello picea, prothorace prasino, capite sordide fulvo, viridi tincto, antennis extrorsum piceis; thorace leviter ruguloso, distincte punctato, ante basin leviter transversim sulcato, prasino, basi et apice flavo marginato; elytris thorace vix latioribus, ad apicem paullo attenuatis, sat crebre punctatis, viridi-flavis, utrinque disco prasino suffuso, linea suturali alteraque marginali, ante apicem abbreviatis, piceis.
Long. 3½ lin.

Hab. Paraguay.

Head exserted; vertex finely punctured; face swollen between the eyes; encarpæ pyriform, contiguous; labrum shining black, narrowly edged with flavous; antennæ about three fourths the length of the body, moderately robust, scarcely attenuated towards the apex. Thorax nearly twice as broad as long; sides rather broadly margined, straight and slightly diverging from the base to beyond the middle, thence rounded and converging to the apex, the hinder angles distinct, the anterior ones slightly produced, obtuse; upper surface moderately convex, impressed in front of the base with a transverse groove; surface finely rugulose, rather coarsely punctured; the colour is pale green, obsoletely bordered at base and apex with greenish yellow. Scutellum transverse, its apex broadly rounded. Elytra scarcely broader than the thorax, slightly attenuated towards the apex, convex, not depressed trans-

versely below the basilar space, from the base to beyond the middle faintly depressed longitudinally along the suture, more finely punctured than the thorax, greenish yellow; a large longitudinal patch on the disk of each elytron, covering nearly its whole surface, but attenuated at the base, pale green; each elytron with two narrow piceous lines, commencing at the base and abbreviated below the middle, one placed on the suture and the other on the lateral margin.

The broad thorax gives this species an entirely different aspect to the typical form of the genus; but I cannot find any

essential structural difference.

# Phygasia dorsata.

P. ovata, convexa, nigra, nitida; elytris fulvis, apice plagaque magna discoidali communi nigris, utrinque vittis elevatis tribus, basi et apice abbreviatis, exteriore pone medium fracta et ramulum brevem introrsum emittente, instructis.

Long.  $3\frac{1}{4}$  lin.

Hab. India, without precise locality, my collection; Kasia

hills, coll. Chapuis.

Vertex smooth, impunctate; encarpæ subpyriform, contiguous; carina narrow, elongate; antennæ more than two thirds the length of the body, filiform, three or four lower joints piceous, the rest black. Thorax nearly twice as broad as long; sides broadly margined, reflexed, rounded, converging towards the base, the anterior angles produced, thickened, obtuse; basal groove deeply impressed, terminated on either side by a deep fovea; disk smooth, impunctate. Elytra oblong-ovate, broader than the thorax, attenuated towards the apex, the latter subacute, slightly recurved; surface minutely punctured, each elytron with three longitudinal ribs; of these the outer one commences on the humeral callus, and extends three fourths the length of the elytron; the second commences just below and rather within the humeral callus, and runs parallel to the outer rib, terminating at about the same distance from the apex of the elytron, the third or inner one is placed on the line of junction between the inner and outer disks, and is much shorter than the two others, commencing considerably below the base, and terminating at a short distance below the middle; the outer rib below its middle is more or less distinctly interrupted, sending a short ill-defined ramus towards the intermediate rib; lastly, parallel to the suture at its apex is a raised longitudinal line: commencing just before the middle of the disk and extending nearly to the black apex is a large common shield-shaped

black patch, its anterior margin transversely truncate, and its hinder apex acuminate.

## Arsipoda Erichsoni.

A. elongato-ovata, couvexa, nigra aut nigro-picea, nitida, thorace, pedibus antennarumque basi obscure rufis; thorace sat crebre, subfortiter punctato, sulco basali integro, sat fortiter impresso; elytris cupreo tinctis, fortiter punctato-striatis, interstitiis obsolete convexiusculis, leviter transversim rugulosis, distincte punctatis.

Var. A. thorace nigro-piceo. Long. 2 lin.

Hab. Tasmania. The type in my collection and that of

Dr. Chapuis; var. A in my own cabinet.

Head impressed on either side above the eye with a few deep foveæ; encarpæ subquadrate, oblique, their inner angles contiguous; carina thickened, elongate; antennæ rather more than half the length of the body, filiform, the four lower joints obscure rufous, the rest nigro-piceous or entirely black. Thorax twice as broad as long; sides straight and nearly parallel from the base to the middle, thence obliquely converging to the apex, the anterior angles produced, thickened, obtuse, the hinder ones nearly rectangular; basal margin transversely truncate on either side, the median lobe produced, obtusely rounded; upper surface rather closely punctured, more or less stained on the disk with piceous; basal groove deeply impressed, entire, bounded on either side by a perpendicular impression. Elytra narrowly oblong-ovate, rather broader than the thorax, coarsely punctate-striate, the interspaces faintly wrinkled, distinctly punctured. Hinder femora unarmed; hinder tibiæ about equal in length to the femora, slightly curved and slightly sulcate on the upper edge; basal joint of all the tarsi dilated in the male.

## Myrcina spectabilis.

M. late ovata, convexa, sordide fulva, nitida, antennis (basi picea excepta) scutelloque nigris; thorace transverso, basi transversim sulcato, sat fortiter punctato, sulco basali et utrinque macula subapicali nigris; elytris crebre punctatis, viridi-eyaneis, apice fulvis.

Mas antennis corpore paullo longioribus; femoribus intermediis sat valde incrassatis, subtus ante apicem angulatis; tibiis anticis compressis, apice incurvatis et spina brevi conica armatis.

Fam. antennis corpore multo brevioribus; femoribus intermediis modice incrassatis.

Long.  $4\frac{1}{2}$ -5 lin.

Hab. Madagascar.

Head exserted, perpendicular; face swollen between the eyes; carina raised, linear, and extending downwards on the surface of the trigonate clypeus in the form of a longitudinal ridge; encarpæ transverse, contiguous, separated from the front by a deep transverse groove; eyes distant, oval; antenna with the three lower joints pale piccous, the rest black. Thorax twice as broad as long; sides reflexed, slightly rounded, nearly parallel, the anterior angles produced, very obtuse; upper surface impressed at the base with a broad transverse groove, which extends on either side nearly to the lateral margin; surface minutely granulose, coarsely punctured, the punctures crowded on the basal groove, more scattered over the disk. Scutellum trigonate. Elytra much broader than the thorax, convex, transversely excavated below the basilar space, the latter distinctly thickened, the humeral callus also thickened; surface closely and rather coarsely punctured, bright metallic green with a bluish tint, the apex fulvous.

Much broader and more ovate than the other known

species.

To the Editors of the Annals and Magazine of Natural History.

XXVI.—On the Nauplius and Pupa Stage of Suctoria. By Prof. Alfred Giard.

GENTLEMEN,--

In the July number of the 'Annals' Mr. C. Spence Bate published an interesting paper "On the Nauplius Stage of Prawns." In this he attempts to prove that the Nauplius described by Fritz Müller as belonging to Penaus cannot be the young of any prawn, but appears to be the larva of a Schizopod more or less related to Euphausia, or of one of the Suctorian parasites.

As far as Metschnikoff's observations enable us to decide, the Nauplius stage is, in fact, the earliest form of the larval condition of Euphausia, whilst most of the Schizopods (the Mysis group for example) present a condensed development. It may be also fairly assumed that this important Nauplius stage may be more frequent amongst the Schizopods than amongst the prawns, the latter occupying a higher rank in the class and offering a Mysis stage in their ontogenic evolution.

I cannot, however, admit that the opinion suggested by Mr. Spence Bate, viz. that Müller's larvæ belong to a Schizopod, is established on solid observations or on serious arguments; but I am absolutely sure this *Nauplius* cannot be related to any form of the Suctoria. Lilljeborg and Anderson have long ago